

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Group Art Unit: 1793
GERARD LASLAZ et al Examiner: J. Morillo
Serial No.: 10/560,819

Filed: December 15, 2005

For: MOULDED Al-Si-Cu ALUMINIUM ALLOY COMPONENT
WITH HIGH HOT-PROCESS RESISTANCE

DECLARATION UNDER 37 CFR 1.132

Honorable Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

I, Stéphane Vernède, do hereby declare as follows:

I hold the degrees of Master of Engineering from Ecole Centrale Paris, Master of Science from Ecole Centrale Paris, and Doctor of Science from Ecole Polytechnique Fédérale de Lausanne.

I was hired by Alcan Centre de Recherche in Voreppe, France in November 2003, and I am presently a research engineer in Melting and Casting in the research unit at the Alcan Centre de Recherche in Voreppe.

I am familiar with the above-identified patent application.

I was responsible for testing of AA3104 alloys to determine the effects of addition of vanadium. The following test procedure was used:

The test alloy was an AA3104 alloy, grain refined before casting with 0.15kg/T AT5B mother alloy.

Test samples were cast using a standard TP1 Method. This

device allows controlled and reproducible solidification conditions.

Samples with 100, 200 and 400 ppm vanadium additions were produced, along with a reference casting produced without vanadium addition.

The microstructure of these samples was observed in a horizontal plane 40mm above the bottom of the sample. Grain size was measured after anodic oxidation, using the intercept method.

Figure 1 below is a graph of grain size as a function of vanadium addition, showing that grain size is larger for the samples with vanadium addition than for the reference sample without vanadium addition. For the sample with 400 ppm vanadium addition, the grain size is measured to 342 μm , while in the reference sample it is 246 μm . This trend is also visible in the micrographs represented by Figures 2(a)-2(d).

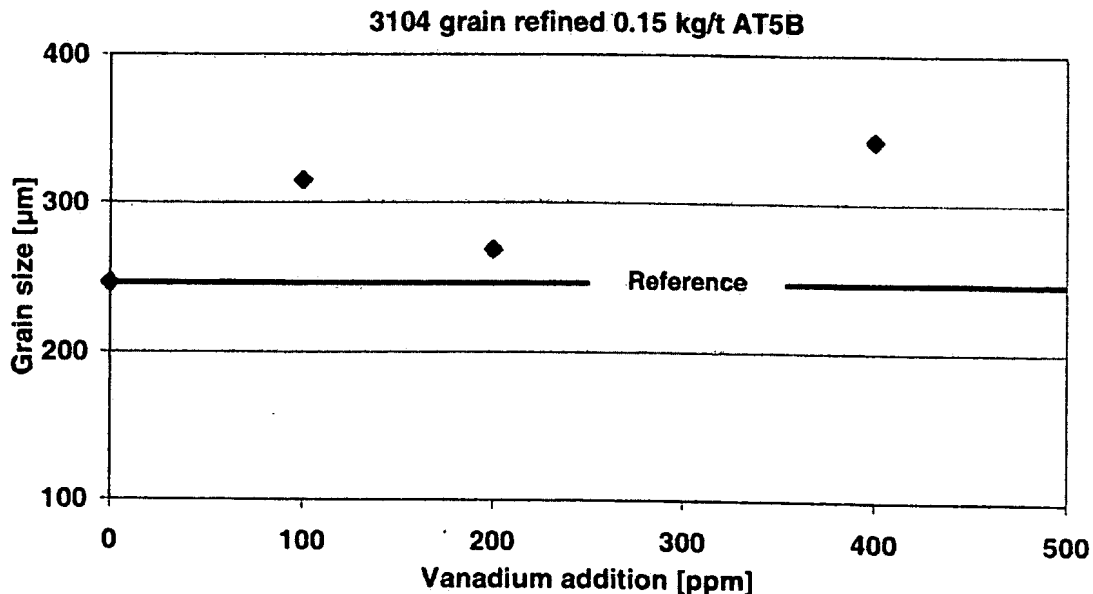


Figure 1: Grain size as a function of Vanadium addition.

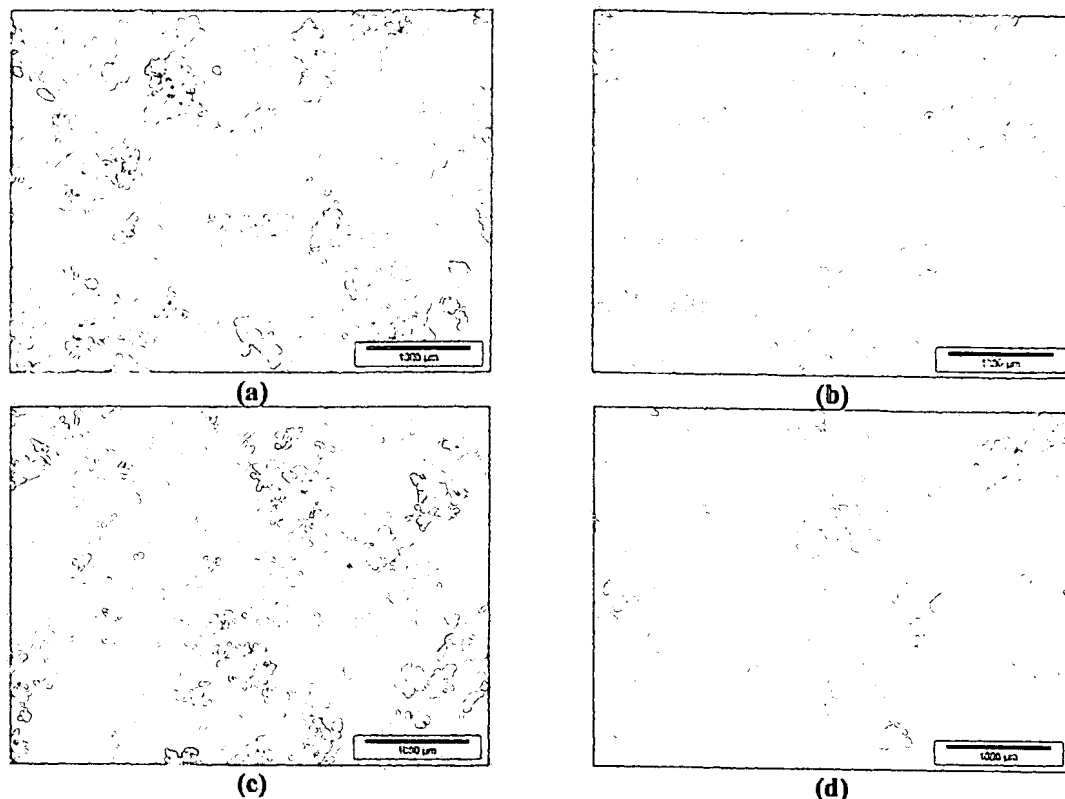


Figure 2: Optical micrograph of the as cast microstructure for various vanadium levels in a 3104 alloy. (a) No additions (b) 100 ppm (c) 200 ppm (d) 400 ppm

It has thus been observed experimentally that vanadium additions in the range of 100-400 ppm increase the grain size in an AA3104 alloy.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

15 December 2008
Date


Stéphane Vernède